

Remarks

By foregoing Amendment, Applicants have amended Claims 4 and 24. No new matter is believed to be added by the Amendment and support for such amendment can be found from throughout the specification and claims as originally filed. Entry of the amendment and favorable consideration thereof is earnestly requested.

Response to the Claim Rejections under 35 USC § 103

The Examiner has rejected Claims 4, 8, 13-15 17-19 and 21-24 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,779,130 (Yabe). These rejections are respectfully traversed and Applicants respectfully ask the Examiner to reconsider the rejections in view of the above Amendments above and Remarks below.

Claim 24 has been amended to further include the limitations (1) that the electronic image sensor has contact fingers, (2) that the circuit board bonded to said image sensor comprises first and second sections wherein the contact fingers are electrically bonded to the first section and to the second section, (3) that the third section has a first leg and a second leg extending obliquely to said first and section sections of the circuit board, and (4) that there is at least one cable electrically bonded to the circuit board, wherein said at least one cable is electrically bonded to the first and second legs. The Applicants respectfully submit that Yabe does not teach or render obvious these limitations.

Figure 2 in Yabe shows an image pick-up module having an image sensor 34 and a circuit board 35. The circuit board 35 of Yabe has a top section which extends parallel to the image pick-up surface of image sensor 34, two sections extending perpendicular to the image pick-up surface of the sensor 34 and a bottom section parallel to the image pick-up surface of the sensor 34. In total, the circuit board 35 is rectangular. Image sensor 34 has contact fingers which are electrically bonded to the top section of the circuit board.

According to Claim 24 of the present application, the image sensor of the image pick-up module also has contact fingers, but these contact fingers are electrically bonded to those sections of the circuit board which extend perpendicular to the image pickup surface of the image sensor. These contact fingers are not electrically bonded to the *top section* as taught by Yabe. As such, Yabe does not teach limitation (2) described above. In fact, Yabe teaches away from this limitation as it proposes an alternate construction to that described in amended Claim 24.

On page 3 of the Official Action, the Examiner has acknowledged that circuit board 35 of Yabe does not have a bottom section which has a substantially V-shaped configuration, as required by amended Claim 24. In contrast, in Yabe the bottom section of circuit board 35 opposite to the image sensor 34 is straight and extends parallel to the image pick-up surface of the image sensor 34 (FIG. 2 of Yabe).

The Examiner argues that a V-shaped configuration would amount to a design variation of Yabe's invention that was within the capability of one of ordinary skill in the art in light of considerations such as the particular type, size or shape of the endoscope shaft within which the module is to be placed. The Examiner further argues that this design feature would not produce unexpected results. The Applicants respectfully disagree with the Examiner's assessment.

The Applicants disagreement stems from the fact that the Examiner has not shown any evidence in the prior art which would support his opinion. In contrast, the image pick-up module according to claim 24 provides benefits (such as forming a slender configuration) which are not predictable by referencing Yabe's invention. There is no hint in Yabe suggesting that the circuit board 35 could have a configuration where the third section opposite to the image sensor has a substantially V-shaped configuration. A person of ordinary skill in the art would not arrive at this limitation by simply referencing Yabe.

In order to put more precisely the V-shaped configuration of the bottom section of the circuit board, Applicants have amended Claim 24 to incorporate the feature that the third section has a first leg and a second leg, wherein the first and second legs extend obliquely to the first and second sections. This limitation (3) discussed above is not taught by Yabe and further distinguishes amended Claim 24 from Yabe.

Applicants have also amended Claim 24 to put more precisely that the at least one cable which is electrically bonded to the circuit board is electrically bonded to the first and second legs of the third section of the circuit board (limitation (4) discussed above).

The fact that amended Claim 24 discloses a configuration of the circuit board having a substantially V-shaped configuration and also having the bonding of the at least one electric cable to the oblique legs of the third section of the circuit board, results in that the overall configuration of the image pickup module has a slender configuration in comparison with the image pick-up module according to Yabe.

By electrically bonding the contact fingers of the image sensor to the first and second side sections which extend substantially perpendicular to the image pickup surface of the image sensor (instead of the top section as taught by Yabe), the arrange-

ment formed by the image sensor and the circuit board of amended Claim 24 is more rigid and more stable against lateral displacements of the image sensor relative to the circuit board.

In contrast, in order to achieve a stable arrangement of the image sensor 34 with respect to the circuit board 35 in Yabe, the image sensor 34 in Yabe is laterally supported by tube 51 surrounding and being in contact with the image sensor 34. Amended Claim 24 does not require use of such a tube.

Applicants submit that Yabe, in fact, teaches a different construction that that claimed in amended Claim 24 and does not teach all the limitations of amended Claim 24. Thus, Yabe does not render Claim 24 obvious and Applicants submit that Claim 24 and its dependent claims are patentable over Yabe. Applicants respectfully submit that the rejections under 35 USC § 103 be withdrawn.

Conclusion

For the foregoing reasons, Applicants submit that the pending claims (4, 8, 13-15, 17-19, 21 and 24) are in condition for allowance, and a notice to that effect is earnestly solicited.

Respectfully submitted,

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